REMARKS

Claims 19-29 are being prosecuted in this divisional application.

Applicants have amended claims 19, 20 and 29 to clarify the present invention.

Claims 19-25, 28 and 29 have been rejected as obvious under 35 U.S.C. §103(a) in view of a combination of Behin (U.S. 6,593,677) and McClelland (U.S. 6,201,629); claim 26 has been rejected as obvious in view of a combination of those two references with Correll (U.S. 4,688,662); and claim 27 has been rejected as obvious in view of those two references with Ralph (U.S. 5,839,692). Reconsideration and removal of these rejects are respectfully requested in view of the present amendments to the claims and the following remarks.

In the following discussion, amended independent claim 29 is described with particular reference to Figs. 3A, 3B and 4A-4C, just for the convenience of explaining the present invention. However, the same discussion equally applies to amended independent claim 19 which shares the same distinguishing features as independent claim 29.

As now defined in amended claim 29, a micromirror unit comprises an inner frame 220, an outer frame 230, a mirror forming base 210, an inner torsion connector 240, and an outer torsion connector 250. The inner frame 220 includes a first portion 221, a second portion 222, and an insulating layer 260 sandwiched between the first portion 221 and the second portion 222. The outer frame 230 surrounds the inner frame 220. The outer frame 230 includes a first portion 231, a second portion 234, and an insulating layer 260 sandwiched between the first portion 231 and the second portion 234 of the outer frame 230. The mirror forming base 210 is provided with a mirror surface

211 and surrounded by the inner frame 220. The inner torsion connector 240 connects the first portion 221 of the inner frame 220 to the mirror forming base 210. The outer torsion connector 250 connects the inner frame 220 to the outer frame 230 and defines an axis X3 about which the inner frame 220 and the mirror forming base 210 are rotated relative to the outer frame 230. The outer torsion connector has a width measured in a direction which is parallel to the mirror surface and perpendicular to the axis of the outer torsion connector 250. The width of the outer torsion connector 250 is relatively great at a connecting portion to the inner frame 220 and becomes gradually smaller from the inner frame 220 toward the outer frame 230. The outer torsion connector 250 comprises a plurality of torsion bars 251, 252 connected to a same side of the inner frame. At least one 251 of the torsion bars connects the first portion 221 of the inner frame 220 to the first portion 231 of the outer frame 230 to provide a first electrical conducting path. At least another 252 of the torsion bars connects the second portion 222 of the inner frame 220 to the second portion 234 of the outer frame 230 to provide a second electrical conducting path which is electrically separate from the first electrical conducting path.

As can be clearly seen in Fig. 4A, the different torsion bars 251, 252 of the same outer torsion connector 250 provide different electrical conducting paths. It is also important that the width of the outer torsion connector is larger at a position for connection to the inner frame and smaller at a position for connection to the outer frame, thereby facilitating rotation of the inner frame relative to the outer frame while keeping rotational stability of the inner frame.

Regarding U.S. Patent 6,593,677 to Behin et al., it is alleged in the Office Action that the outer torsion connectors 512 connected to two different sides of the inner frame 511 correspond to the claimed torsion bars of the present invention. However, amended claim 29 (and amended claim 19 as well) now requires that the outer torsion connector comprise a plurality of torsion bars connected to a same side of the inner frame for providing different electrical conducting path. Further, the torsion connector 512 in Behin et al. has a constant width, contrary to the requirement of a variance in width set forth in amended claims 19 and 29.

As seen in Fig. 19 of U.S. Patent 6,201,629 to McClelland et al., the torsional spring 5 has a greatest width at one end for connection to the frame and tapers toward the other end for connection to the mirror support structure 4. Thus, McClelland et al. teaches the opposite of what is required in the present amended independent claims 19 and 29. Therefore, this reference does not provide what the primary reference lacks, contrary to the allegation in the Office Action.

The remaining references are cited only with respect to the dependent claims, and do not provide teachings that remove the deficiencies of the primary references. In this regard, it should also be noted that Correll and Ralph et al. relate to a field of technology which is far from the field of micromirrors.

In view of the present amendments to the claims and the above remarks, Applicants' claims 19-29, as amended, are believed to be patentable and early action towards allowance thereof is respectfully requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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